

MUT-4939 rbcL-C256A mt+

Cat. No. ALS-04074

Lot. No. (See product label)

Subcategory

Mutants

Description

Using standard methods of directed mutagenesis and chloroplast transformation of rbcL Δ -MX3312 mt+ (MUT-4696), a C256A substitution (TGT-GCT) was created in the Rubisco large subunit. Because Cys-256 is methylated, this mutant was created to investigate the role of the modified residue in Rubisco structure or function. Large-subunit Cys-256 has significant interactions with the Rubisco small subunit. The C256A substitution causes decreases in Rubisco CO₂/O₂ specificity and carboxylation catalytic efficiency. The mutant strain grows slowly on minimal medium at 25 °C, but dies on minimal medium at 35 °C. This strain has been maintained with acetate medium in darkness to prevent selection for secondary mutations that may improve Rubisco function.

Species

Chlamydomonas

Locus

rbcL

Chromosome

Chloroplast

Phenotype

Requires acetate at 35 °C; temperature-conditional

FOR RESEARCH OR FURTHER MANUFACTURING USE ONLY